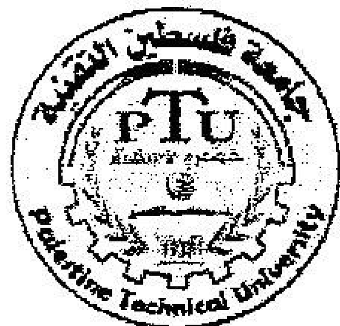
Course's Name :Microcontrollers *Course's Number :12120305* *Exam's Period :50min* *Questions' Number : 3* *Total Mark :20* *Pages' Number :1*	**Palestine Technical University - Kadoorie**  *second...Exam* *...2...Semester 2012/2013*	*Instructor's Name :Basim Alsayid* *Student's Name:* *..............................* *Student's Number:* *..............................* *Section's Number:* *..............................* *Exam's Date :4/6/2013* *Form :*

[redacted]

معن سلاح حمدان

[redacted]

Q1) A switch is connected to pin RB0 . write a program to get the status of the switch and save it in D0 of file location 0x20. (6)

[redacted]

Q2) Write a program to clear the working register and to add 3 to it ten times . (use BNZ instruction). (6)

[redacted]

Q3) For the following program calculate the frequency of the square wave generated on pin RC3 if the fosc=10Mhz: (8)

```
        BCF    TRISC.3
BACK    BSF    PORTC.3
        CALL   DELAY
        CALL   DELAY
        BCF    PORTC.3
        CALL   DELAY
        BRA    BACK

DELAY   MOVLW    0XFA      1
        MOVWF    MYREG     1
AGAIN   NOP      1
        NOP      1
        NOP      1
        DECF     MYREG,F   1
        BNZ      AGAIN     2
        RETURN             1
```

~~MOVLW PortD~~
~~MOVWF MYREG~~

[redacted]

1 1 1 1 1 0 1 0

128 64 32 16 8 4 2 1

128 + 64 + 32 + 16 + 8 + 0 + 2 + 0

122 + 128 = 250 26 + 32 = 58 + 64 = 122

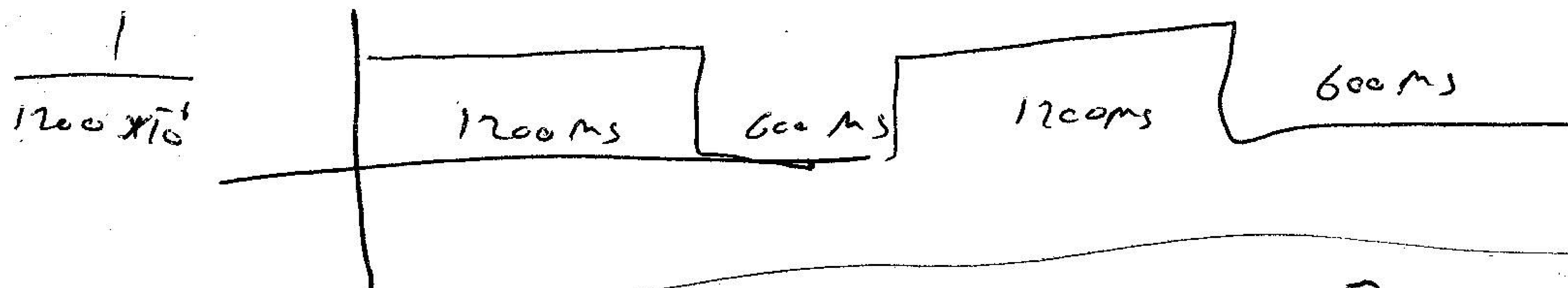
$((250 \times 7) + 2) \times 0.4 \times 10^{-6}$

The END

$= 2((250 \times 6) + 3) \times 0.4 \ \mu s$

$= 601.2 \ \mu s - 1 = 600.2 \ \mu s \approx 600 \ \mu s$

$\frac{1}{1200 \times 10^{-6}}$



Page 1

امتحان ثاني ميكرو دقيقة + اجابات

تم الرفع بواسطة م. معن أبو عيسى

MW 9.30 – 11.00

Micro 2nd Exam

20/20

Dr. Basem Al-sayyed
4/6/2013

Name : Máen Qédan | معن سلام قعدان | [redacted]

Q1

~~MYREG EQU 0X20~~
~~[illegible]~~
~~BSF TRISB,0~~
~~CLRF TRISD~~
~~BTFSS PortB,0~~
~~BRA over~~

```
MYREG EQU 0X20
~~[illegible]~~ BSF TRISB,0
~~BCF TRISD,0~~ BCF TRISD,0
~~SETF TRISB~~
~~CLRF TRISD~~
again BTFSS PortB,0
      BRA over
      BSF MYREG,0
      goto again
over  BCF MYREG,0
      goto again
      ~~END~~
```

6

Q2

~~ORG 0H~~
~~[illegible]~~
~~[illegible]~~
~~R1 EQU 0X25~~
~~MYCOUNT EQU d'10'~~
~~MOVLW 0~~
~~Again ADDLW 3~~
~~DECF MYCount,F~~
~~BNZ Again~~
~~END~~

6

```
ORG 0H
R1 EQU 0X25
MYCOUNT EQU d'10'
MOVLW MYCOUNT
MOVWF R1
MOVLW 0
LOP_1 ADDLW 3
DECF R1,F
BNZ LOP_1
END
```

Q3

```
DELAY   MOVLW   0XFA        1
        MOVWF   MYREG       1
Again   NOP                 1
        NOP                 1
        NOP                 1
        DECF    MYREG,F     1
        BNZ     Again       2
        RETURN              1
```

$F = \frac{10}{4} = 2.5\,MHz$

$T = \frac{1}{2.5\,MHz} = $ **0.4 Ms**

---

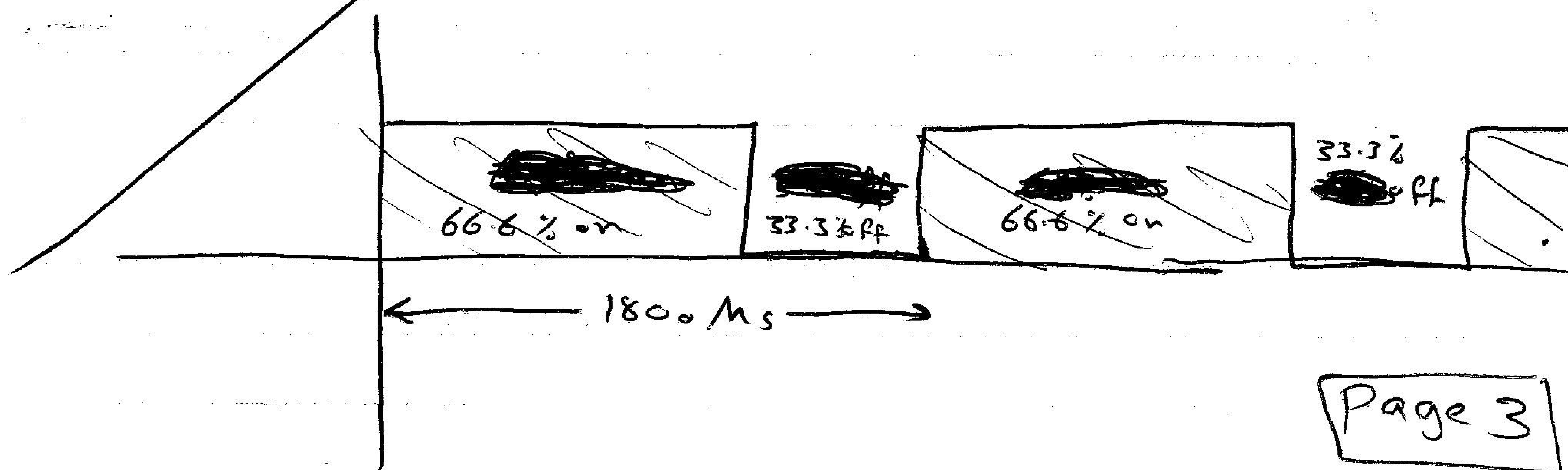
(8) $(0XFA)_{16} = (250)_{10}$

$[(250 \times 6) + 3] \times 0.4\,Ms = 601.2\,Ms$

For one Loop, we decreament 1 Ms

$\therefore 601.2 - 1 = 600.2\,Ms \approx$ **600 Ms**

$\therefore$ **DELAY = 600 Ms**



~~$\therefore$ Total DELAY = 3X 600 Ms = 1800 Ms~~

$\therefore$ Total DELAY = $3 \times 600\,Ms$ = **1800 Ms for one cycle**

[illegible]

$\therefore$ f of the square wave $= \frac{1}{1800 \, \mu s}$

$= \boxed{555.55 \ Hz}$

تمّ بحمدِ اللهِ تعالى

